



# SEQUENCE LISTING

<110> HATTORI, NORIAKI  
MURAKAMI, SEIJI

<120> LUCIFERASE AND A METHOD FOR DETECTING INTRACELLULAR ATP USING THE  
SAME

<130> 193582US-3524-7126-0 PCT

<140> 09/581241

<141> 2000-06-26

<150> JP97/361022

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<170> PatentIn version 3.2

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Arg Asp Pro Ile Tyr Gly Asn Gln Val Ser Pro Gly Thr Ala Ile Leu  
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Leu Val Pro Thr Leu Phe Ala Ile Leu Asn Arg Ser Glu Leu Leu Asp

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Lys	Tyr	Asp	Leu	Ser	Asn	Leu	Val	Glu	Ile	Ala	Ser	Gly	Gly	Ala	Pro
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Leu	Ser	Lys	Glu	Ile	Gly	Glu	Ala	Val	Ala	Arg	Arg	Phe	Asn	Leu	Pro
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Gly	Val	Arg	Gln	Gly	Tyr	Gly	Leu	Thr	Glu	Thr	Thr	Ser	Ala	Ile	Ile
			340					345					350		
Ile	Thr	Pro	Glu	Gly	Asp	Asp	Lys	Pro	Gly	Ala	Ser	Gly	Lys	Val	Val
		355					360					365			
Pro	Leu	Phe	Lys	Ala	Lys	Val	Ile	Asp	Leu	Asp	Thr	Lys	Lys	Thr	Leu
	370					375					380				
Gly	Pro	Asn	Arg	Arg	Gly	Glu	Val	Cys	Val	Lys	Gly	Pro	Met	Leu	Met
385					390					395					400
Lys	Gly	Tyr	Val	Asp	Asn	Pro	Glu	Ala	Thr	Arg	Glu	Ile	Ile	Asp	Glu
				405					410					415	
Glu	Gly	Trp	Leu	His	Thr	Gly	Asp	Ile	Gly	Tyr	Tyr	Asp	Glu	Glu	Lys
			420					425					430		
His	Phe	Phe	Ile	Val	Asp	Arg	Leu	Lys	Ser	Leu	Ile	Lys	Tyr	Lys	Gly
		435					440					445			
Tyr	Gln	Val	Pro	Pro	Ala	Glu	Leu	Glu	Ser	Val	Leu	Leu	Gln	His	Pro
	450					455					460				
Asn	Ile	Phe	Asp	Ala	Gly	Val	Ala	Gly	Val	Pro	Asp	Pro	Ile	Ala	Gly
465					470					475					480
Glu	Leu	Pro	Gly	Ala	Val	Val	Val	Leu	Lys	Lys	Gly	Lys	Ser	Met	Thr
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	515						520					525				
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1				5					10					15		
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Phe	Tyr	Pro	Ile	Glu	Glu	Gly	Ser	Ala	Gly	Ala	Gln	Leu	Arg	Lys	Tyr	
			20					25					30			
atg	gat	cga	tat	gca	aaa	ctt	gga	gca	att	gct	ttt	act	aac	gca	ctt	144
Met	Asp	Arg	Tyr	Ala	Lys	Leu	Gly	Ala	Ile	Ala	Phe	Thr	Asn	Ala	Leu	
		35					40					45				
acc	ggt	gtc	gat	tat	acg	tac	gcc	gaa	tac	tta	gaa	aaa	tca	tgc	tgt	192
Thr	Gly	Val	Asp	Tyr	Thr	Tyr	Ala	Glu	Tyr	Leu	Glu	Lys	Ser	Cys	Cys	
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cta	gga	gag	gct	tta	aag	aat	tat	ggt	ttg	gtt	gtt	gat	gga	aga	att	240
Leu	Gly	Glu	Ala	Leu	Lys	Asn	Tyr	Gly	Leu	Val	Val	Asp	Gly	Arg	Ile	
65					70				75						80	
gcg	tta	tgc	agt	gaa	aac	tgt	gaa	gaa	ttc	ttt	att	cct	gta	tta	gcc	288
Ala	Leu	Cys	Ser	Glu	Asn	Cys	Glu	Glu	Phe	Phe	Ile	Pro	Val	Leu	Ala	
				85					90					95		
ggt	tta	ttt	ata	ggt	gtc	ggt	gtg	gct	cca	act	aat	gag	att	tac	act	336
Gly	Leu	Phe	Ile	Gly	Val	Gly	Val	Ala	Pro	Thr	Asn	Glu	Ile	Tyr	Thr	

100						105						110						
cta	cgt	gaa	ttg	gtt	cac	agt	tta	ggc	atc	tct	aag	cca	aca	att	gta	384		
Leu	Arg	Glu	Leu	Val	His	Ser	Leu	Gly	Ile	Ser	Lys	Pro	Thr	Ile	Val			
		115						120					125					
ttt	agt	tct	aaa	aaa	gga	tta	gat	aaa	gtt	ata	act	gta	caa	aaa	acg	432		
Phe	Ser	Ser	Lys	Lys	Gly	Leu	Asp	Lys	Val	Ile	Thr	Val	Gln	Lys	Thr			
		130					135				140							
gta	act	gct	att	aaa	acc	att	gtt	ata	ttg	gac	agc	aaa	gtg	gat	tat	480		
Val	Thr	Ala	Ile	Lys	Thr	Ile	Val	Ile	Leu	Asp	Ser	Lys	Val	Asp	Tyr			
		145			150					155					160			
aga	ggc	tat	caa	tcc	atg	gac	aac	ttt	att	aaa	aaa	aac	act	cca	caa	528		
Arg	Gly	Tyr	Gln	Ser	Met	Asp	Asn	Phe	Ile	Lys	Lys	Asn	Thr	Pro	Gln			
				165					170					175				
ggc	ttc	aaa	gga	tca	agt	ttt	aaa	act	gta	gaa	gtt	aac	cgc	aaa	gaa	576		
Gly	Phe	Lys	Gly	Ser	Ser	Phe	Lys	Thr	Val	Glu	Val	Asn	Arg	Lys	Glu			
			180					185					190					
caa	gtt	gct	ctt	ata	atg	aac	tct	tgc	ggc	tca	acc	ggc	ttg	cca	aaa	624		
Gln	Val	Ala	Leu	Ile	Met	Asn	Ser	Ser	Gly	Ser	Thr	Gly	Leu	Pro	Lys			
		195					200					205						
ggc	gtg	caa	ctt	act	cat	gaa	aat	gca	gtc	act	aga	ttt	tct	cac	gct	672		
Gly	Val	Gln	Leu	Thr	His	Glu	Asn	Ala	Val	Thr	Arg	Phe	Ser	His	Ala			
		210				215					220							
aga	gat	cca	att	tat	gga	aac	caa	gtt	tca	cca	ggc	acg	gct	att	tta	720		
Arg	Asp	Pro	Ile	Tyr	Gly	Asn	Gln	Val	Ser	Pro	Gly	Thr	Ala	Ile	Leu			
		225			230					235					240			
act	gta	gta	cca	ttc	cat	cat	ggc	ttt	ggc	atg	ttt	act	act	tta	ggc	768		
Thr	Val	Val	Pro	Phe	His	His	Gly	Phe	Gly	Met	Phe	Thr	Thr	Leu	Gly			
				245					250					255				
tat	cta	act	tgt	ggc	ttt	cgt	att	gtc	atg	tta	acg	aaa	ttt	gac	gaa	816		
Tyr	Leu	Thr	Cys	Gly	Phe	Arg	Ile	Val	Met	Leu	Thr	Lys	Phe	Asp	Glu			
			260					265					270					
gag	act	ttt	tta	aaa	aca	ctg	caa	gat	tac	aaa	tgt	tca	agc	gtt	att	864		
Glu	Thr	Phe	Leu	Lys	Thr	Leu	Gln	Asp	Tyr	Lys	Cys	Ser	Ser	Val	Ile			
		275					280					285						
ctt	gta	ccg	act	ttg	ttt	gca	att	ctt	aat	aga	agt	gaa	tta	ctc	gat	912		
Leu	Val	Pro	Thr	Leu	Phe	Ala	Ile	Leu	Asn	Arg	Ser	Glu	Leu	Leu	Asp			
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Lys	Tyr	Asp	Leu	Ser	Asn	Leu	Val	Glu	Ile	Ala	Ser	Gly	Gly	Ala	Pro			

305		310		315		320	
tta tct aaa gaa att ggt gaa gct gtt gct aga cgt ttt aat tta ccg	1008						
Leu Ser Lys Glu Ile Gly Glu Ala Val Ala Arg Arg Phe Asn Leu Pro							
		325		330		335	
ggg ggt cgt caa ggc tat ggt tta aca gaa aca acc tct gca att att	1056						
Gly Val Arg Gln Gly Tyr Gly Leu Thr Glu Thr Thr Ser Ala Ile Ile							
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atc aca ccg gaa ggc gat gat aaa cca ggt gct tct ggc aaa gtt gtg	1104						
Ile Thr Pro Glu Gly Asp Asp Lys Pro Gly Ala Ser Gly Lys Val Val							
		355		360		365	
cca tta ttt aaa gca aaa gtt atc gat ctt gat act aaa aaa act ttg	1152						
Pro Leu Phe Lys Ala Lys Val Ile Asp Leu Asp Thr Lys Lys Thr Leu							
		370		375		380	
ggc ccg aac aga cgt gga gaa gtt tgt gta aag ggt cct atg ctt atg	1200						
Gly Pro Asn Arg Arg Gly Glu Val Cys Val Lys Gly Pro Met Leu Met							
		385		390		395	400
aaa ggt tat gta gat aat cca gaa gca aca aga gaa atc ata gat gaa	1248						
Lys Gly Tyr Val Asp Asn Pro Glu Ala Thr Arg Glu Ile Ile Asp Glu							
		405		410		415	
gaa ggt tgg ttg cac aca gga gat att ggg tat tac gat gaa gaa aaa	1296						
Glu Gly Trp Leu His Thr Gly Asp Ile Gly Tyr Tyr Asp Glu Glu Lys							
		420		425		430	
cat ttc ttt atc gtg gat cgt ttg aag tct tta atc aaa tac aaa gga	1344						
His Phe Phe Ile Val Asp Arg Leu Lys Ser Leu Ile Lys Tyr Lys Gly							
		435		440		445	
tat caa gta cca cct gct gaa tta gaa tct gtt ctt ttg caa cat cca	1392						
Tyr Gln Val Pro Pro Ala Glu Leu Glu Ser Val Leu Leu Gln His Pro							
		450		455		460	
aat att ttt gat gcc ggc gtt gct ggc gtt cca gat cct ata gct ggt	1440						
Asn Ile Phe Asp Ala Gly Val Ala Gly Val Pro Asp Pro Ile Ala Gly							
		465		470		475	480
gag ctt ccg gga gct gtt gtt gta ctt gaa aaa gga aaa tct atg act	1488						
Glu Leu Pro Gly Ala Val Val Val Leu Glu Lys Gly Lys Ser Met Thr							
		485		490		495	
gaa aaa gaa gta atg gat tac gtt gct agt caa gtt tca aat gca aaa	1536						
Glu Lys Glu Val Met Asp Tyr Val Ala Ser Gln Val Ser Asn Ala Lys							
		500		505		510	
cgt ttg cgt ggt ggt gtc cgt ttt gtg gac gaa gta cct aaa ggt ctc	1584						
Arg Leu Arg Gly Gly Val Arg Phe Val Asp Glu Val Pro Lys Gly Leu							

515	520	525	
act ggt aaa att gac ggt aaa gca att aga gaa ata ctg aag aaa cca			1632
Thr Gly Lys Ile Asp Gly Lys Ala Ile Arg Glu Ile Leu Lys Lys Pro			
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Val Ala Lys Met			
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Phe Tyr Pro Ile Glu Glu Gly Ser Ala Gly Ala Gln Leu Arg Lys Tyr			
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Met Asp Arg Tyr Ala Lys Leu Gly Ala Ile Ala Phe Thr Asn Ala Leu			
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Thr Gly Val Asp Tyr Thr Tyr Ala Glu Tyr Leu Glu Lys Ser Cys Cys			
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Leu Gly Glu Ala Leu Lys Asn Tyr Gly Leu Val Val Asp Gly Arg Ile			
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Ala Leu Cys Ser Glu Asn Cys Glu Glu Phe Phe Ile Pro Val Leu Ala			
	85	90	95
Gly Leu Phe Ile Gly Val Gly Val Ala Pro Thr Asn Glu Ile Tyr Thr			
	100	105	110
Leu Arg Glu Leu Val His Ser Leu Gly Ile Ser Lys Pro Thr Ile Val			
	115	120	125
Phe Ser Ser Lys Lys Gly Leu Asp Lys Val Ile Thr Val Gln Lys Thr			
130	135	140	



Val	Thr	Ala	Ile	Lys	Thr	Ile	Val	Ile	Leu	Asp	Ser	Lys	Val	Asp	Tyr	145	150	155	160
Arg	Gly	Tyr	Gln	Ser	Met	Asp	Asn	Phe	Ile	Lys	Lys	Asn	Thr	Pro	Gln	165	170	175	
Gly	Phe	Lys	Gly	Ser	Ser	Phe	Lys	Thr	Val	Glu	Val	Asn	Arg	Lys	Glu	180	185	190	
Gln	Val	Ala	Leu	Ile	Met	Asn	Ser	Ser	Gly	Ser	Thr	Gly	Leu	Pro	Lys	195	200	205	
Gly	Val	Gln	Leu	Thr	His	Glu	Asn	Ala	Val	Thr	Arg	Phe	Ser	His	Ala	210	215	220	
Arg	Asp	Pro	Ile	Tyr	Gly	Asn	Gln	Val	Ser	Pro	Gly	Thr	Ala	Ile	Leu	225	230	235	240
Thr	Val	Val	Pro	Phe	His	His	Gly	Phe	Gly	Met	Phe	Thr	Thr	Leu	Gly	245	250	255	
Tyr	Leu	Thr	Cys	Gly	Phe	Arg	Ile	Val	Met	Leu	Thr	Lys	Phe	Asp	Glu	260	265	270	
Glu	Thr	Phe	Leu	Lys	Thr	Leu	Gln	Asp	Tyr	Lys	Cys	Ser	Ser	Val	Ile	275	280	285	
Leu	Val	Pro	Thr	Leu	Phe	Ala	Ile	Leu	Asn	Arg	Ser	Glu	Leu	Leu	Asp	290	295	300	
Lys	Tyr	Asp	Leu	Ser	Asn	Leu	Val	Glu	Ile	Ala	Ser	Gly	Gly	Ala	Pro	305	310	315	320
Leu	Ser	Lys	Glu	Ile	Gly	Glu	Ala	Val	Ala	Arg	Arg	Phe	Asn	Leu	Pro	325	330	335	
Gly	Val	Arg	Gln	Gly	Tyr	Gly	Leu	Thr	Glu	Thr	Thr	Ser	Ala	Ile	Ile	340	345	350	

Ile	Thr	Pro	Glu	Gly	Asp	Asp	Lys	Pro	Gly	Ala	Ser	Gly	Lys	Val	Val		
		355					360					365					
Pro	Leu	Phe	Lys	Ala	Lys	Val	Ile	Asp	Leu	Asp	Thr	Lys	Lys	Thr	Leu		
	370					375					380						
Gly	Pro	Asn	Arg	Arg	Gly	Glu	Val	Cys	Val	Lys	Gly	Pro	Met	Leu	Met		
385					390					395					400		
Lys	Gly	Tyr	Val	Asp	Asn	Pro	Glu	Ala	Thr	Arg	Glu	Ile	Ile	Asp	Glu		
				405					410					415			
Glu	Gly	Trp	Leu	His	Thr	Gly	Asp	Ile	Gly	Tyr	Tyr	Asp	Glu	Glu	Lys		
			420					425					430				
His	Phe	Phe	Ile	Val	Asp	Arg	Leu	Lys	Ser	Leu	Ile	Lys	Tyr	Lys	Gly		
		435					440					445					
Tyr	Gln	Val	Pro	Pro	Ala	Glu	Leu	Glu	Ser	Val	Leu	Leu	Gln	His	Pro		
	450					455					460						
Asn	Ile	Phe	Asp	Ala	Gly	Val	Ala	Gly	Val	Pro	Asp	Pro	Ile	Ala	Gly		
465					470					475					480		
Glu	Leu	Pro	Gly	Ala	Val	Val	Val	Leu	Glu	Lys	Gly	Lys	Ser	Met	Thr		
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			500					505					510				
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		515					520					525					
Thr	Gly	Lys	Ile	Asp	Gly	Lys	Ala	Ile	Arg	Glu	Ile	Leu	Lys	Lys	Pro		
	530					535					540						
Val	Ala	Lys	Met														
545																	